

## Apparatus and Method for Purifying Air

### ABSTRACT

An apparatus and method of purifying air where a photocatalyst is exposed to ambient air to purify it from bacteria, hydrocarbons, and volatile organic compounds. The apparatus can contain a vertical reactor containing the photocatalyst either on sheets, in a web-like structure, or in a fibrous mass, or any other way of holding it. The photocatalyst can be excited with an ultraviolet light source. Air rises through the reactor by natural convection caused by a heater or heater element located in the reactor. The apparatus can contain no moving or replaceable parts. An optional air filter can also be located at the bottom of the reactor to remove particulate matter from the rising air. In one embodiment, excess visible light from the ultraviolet light source is allowed to escape from the top, bottom, or side of the device to provide light for persons to see at night thereby acting as a night light which simultaneously purifies air. The invention also comprises a method where cooler ambient air is allowed to enter a chimney or reactor and flow upward past a heater by natural convection, also flowing past an excited photocatalyst thereby being purified from contaminants such as bacteria and organic compounds.